Effect of Thicker Beam Pipe

2nd Feb 2009

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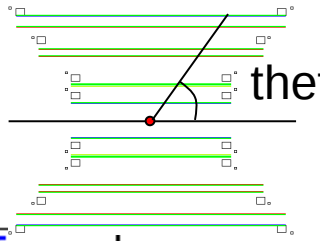
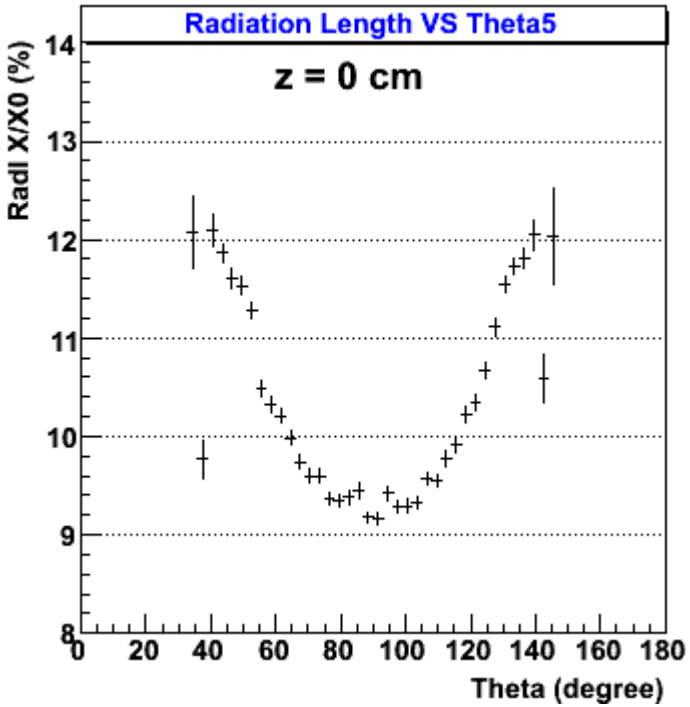
for the PHENIX Collaboration

Radiation Length

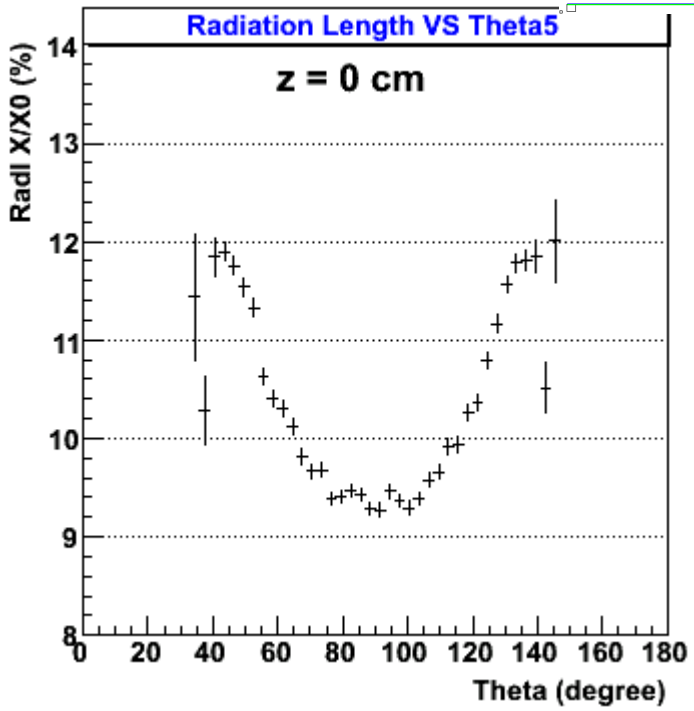
- Brush Wellman wish to make the new beam pipe thicker. The thickness of beam pipe may go from 0.02 to 0.03 (inch).

- Radiation length was calculated for thickness of 0.02 and 0.03.





thickness of 0.02 inch

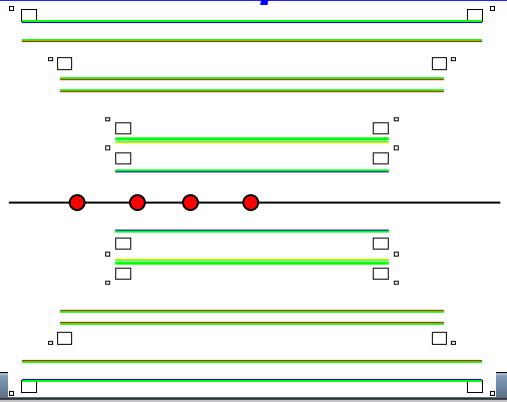


thickness of 0.03 inch

The radiation length was unchanged by this modification.

Back Up

Radiation Length and P_T Plots (Thickness of Beam Pipe : 0.02 inch)

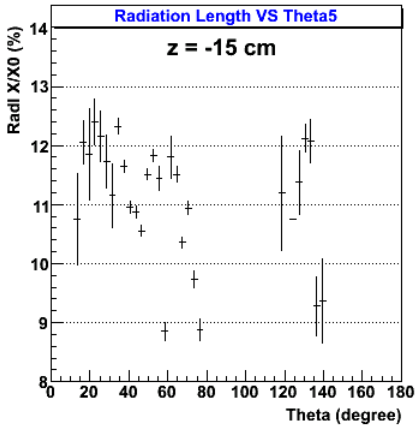


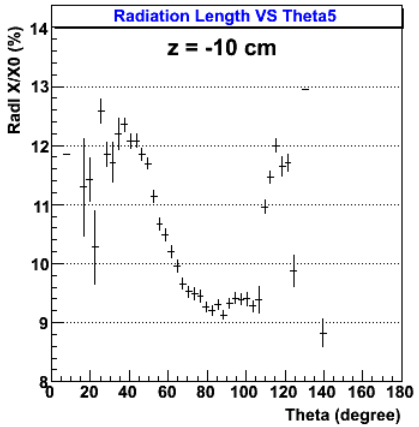
NOT applying acceptance cut.

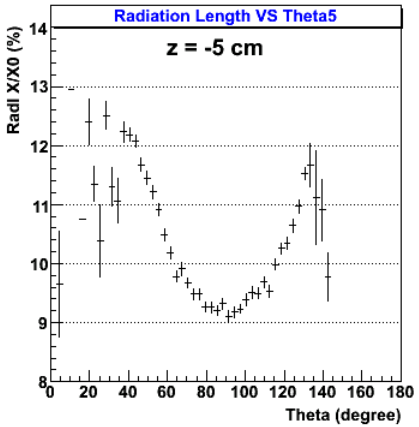
0 < theta (degree) < 180
0 < phi (degree) < 360
-15 < Vertex_z (cm) < 0

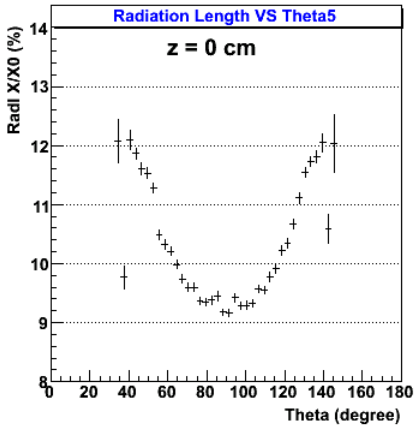
Radl

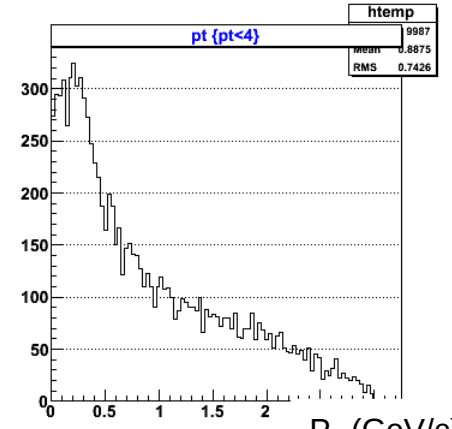
File Edit View Options Inspect Classes Help

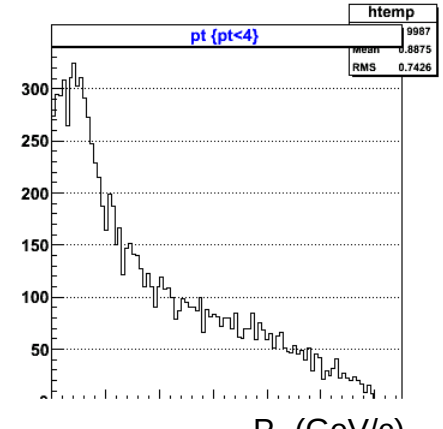


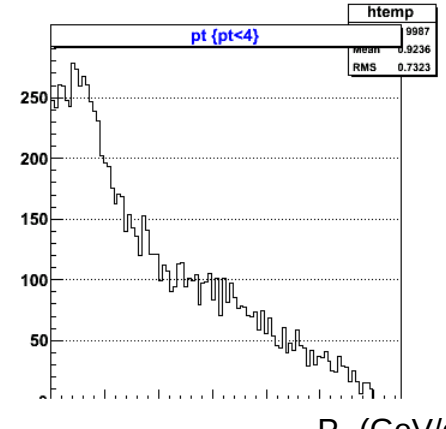


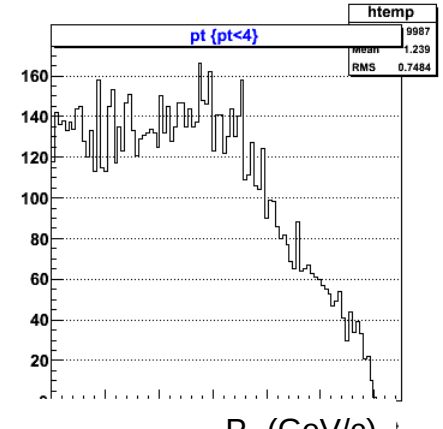




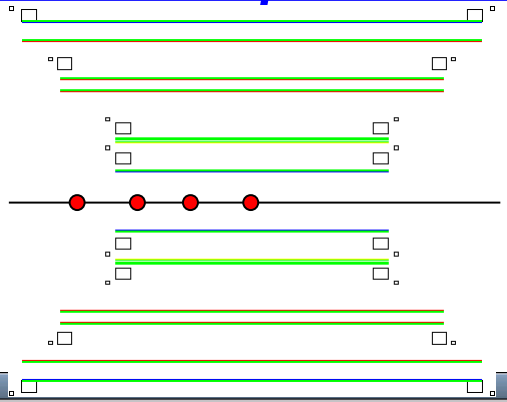








Radiation Length and P_T Plots (Thickness of Beam Pipe : 0.03 inch)



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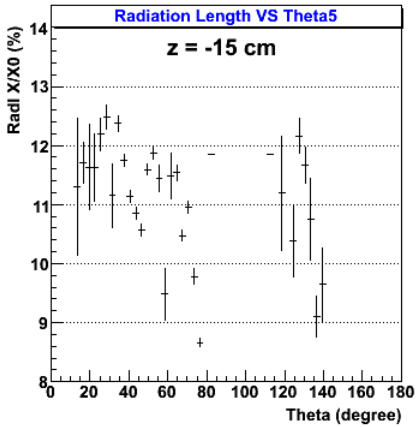
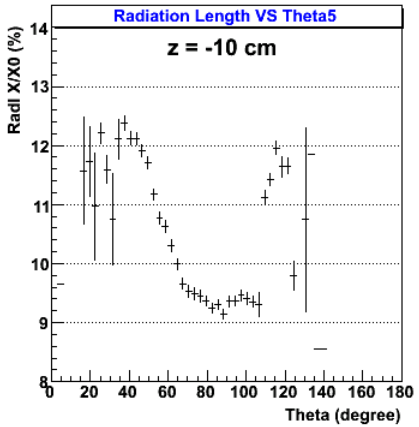
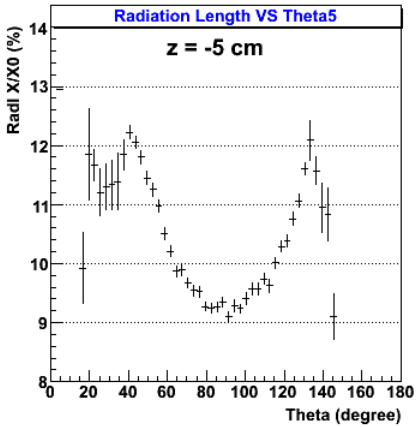
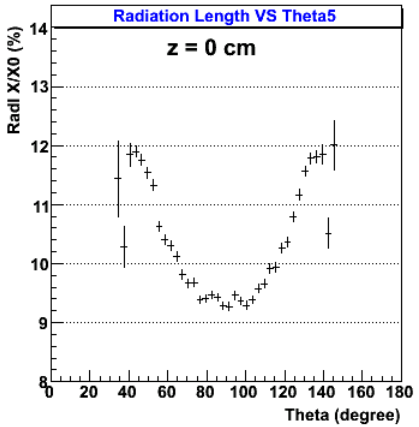
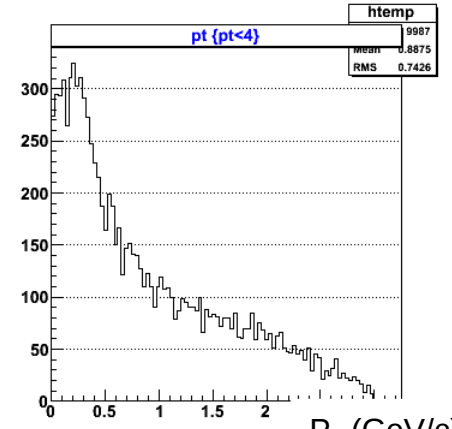
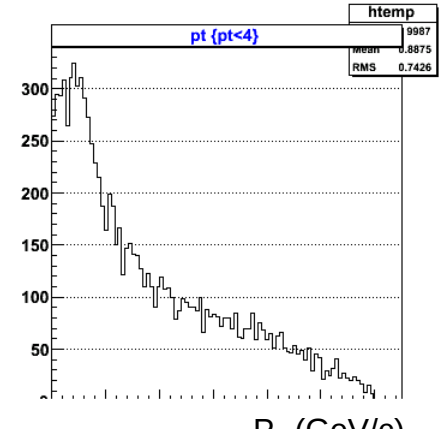


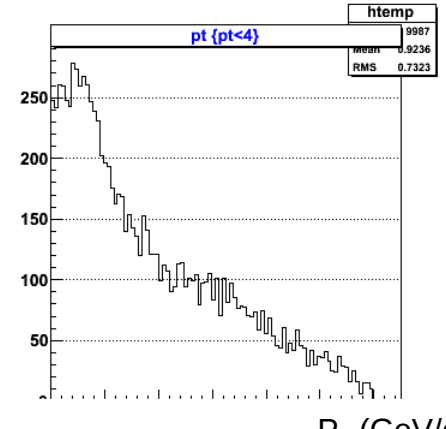


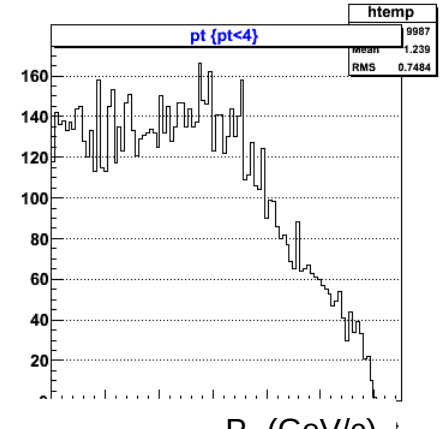








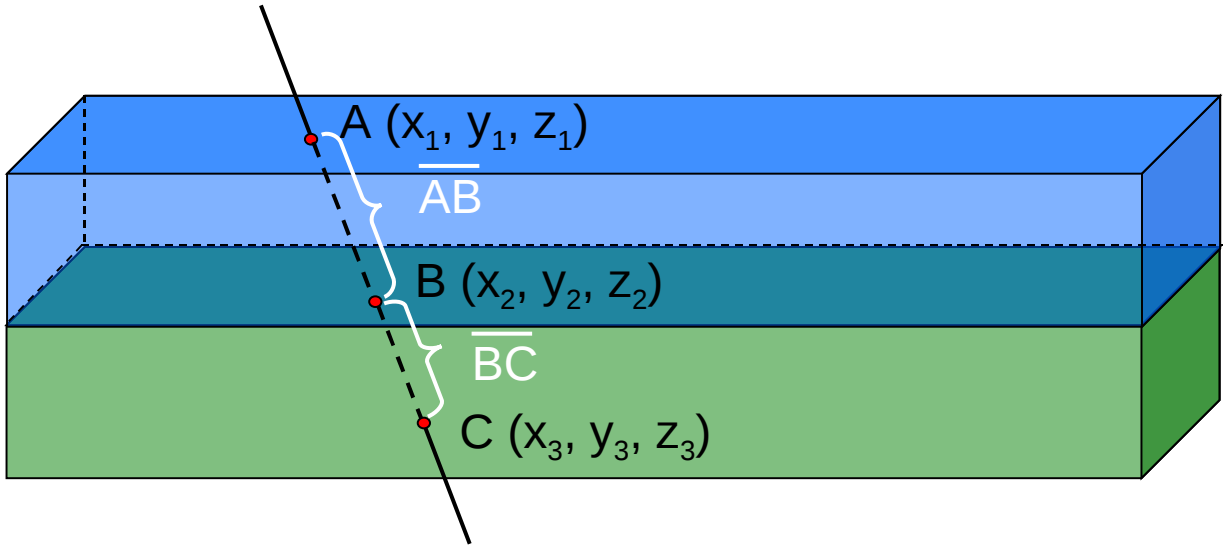




Calculation of Radiation Length

Use of a pass length through medium to obtain a radiation length.

Not use LSCAN or HSCAN



Radiation Length : $$\frac{X}{X_0}(total) = \left(\frac{\overline{AB}}{X_0(1)} + \frac{\overline{BC}}{X_0(2)} + \cdots \right) \times 100(\%)$$

Coordinates of point A, B, C...
$X_0(1)$, $X_0(2)$… } can be obtained from PISA.